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*On the Results of the Operations of the Gotha Life Assurance Bank
for the first Twenty-five Years of its existence, particularly with
respect to the Mortality amongst the Lives Assured. By Herr
RATH G. HOPF, Manager of the Gotha Life Assurance Bank,
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London, and of the Academy for Useful Sciences at Erfurt.*

THE Gotha Life Assurance Bank was founded at a time when there existed scarcely any knowledge of life assurance in Germany. Some former attempts to found such a Company had failed for this reason, and the few life assurances which were sought at that time by Germans, especially in the Hanseatic towns, could only be effected with English Companies. An essential change has taken place in this respect since the year 1827, when, by the establishment of the Life Assurance Bank for Germany at Gotha, the desire for life assurance was awakened, and its signification and meaning were explained and advanced by numerous publications. Since that time life assurance has risen in Germany as in no other country, with the exception of England. Excepting England, no country so abounds as Germany in self-denying heads of families, who find an impulse upon their minds to provide for their families beyond their own dissolution, and who endeavour to satisfy this impulse even with slender means. Such a susceptible soil could not but prove fertile to such as understood how to cultivate it. The greater part of the Life Assurance Companies which have been founded since have therefore gone on well, although the Life Assurance Bank of Gotha has hitherto reaped most of the fruits in this field.* As it was the first German Life Assurance Office, so it has risen to be the greatest of its kind in Germany, and, as concerns the number of the lives assured, to be the greatest in Europe. Though its establishment had been completed as early as 1801, and the statute to effect assurances had been made public, yet it required, as a mutual Society, a greater number of members, before it could make binding contracts of assurance. Such a number was gathered after a short time; however, to be quite sure, the policies were not delivered till the 1st January, 1829, on which day they were issued for not less than 794 members, and for a total sum assured of £200,000. Since then the Company has increased in quick progression, and has already made not only very considerable payments to the representatives of deceased members, but also

* Pp. 58, 159.

proportionably considerable returns from the surplus to the living members. The first 25 years of its existence closed with the year 1853—an epoch very proper to lead to reflections upon the manner in which the Company has gradually developed itself, and upon the experience it has gained as concerns the mortality of the lives assured. On the former point, the following extract from the table added to the report of the Office for 1853 gives information (*see p. 327*) :—

This table shows that, of the 36,583 proposals, with the total sum assured of £7,667,712, presented as eligible by the agents to the Office, about 84 per cent. or £6,438,400 have been thought fit for acceptance. The greater part of the remaining 16 per cent. was refused, because those persons who wished to be assured did not enjoy sufficiently good health. Of those who are approved the Office does not indeed demand perfect or ideal health, which could scarcely be found, but a normal state—that is, the exemption from a predisposition to sickness which may endanger and shorten life. In order that the premiums may agree with the risk, he who wishes to be received must possess that measure of health which, according to science and experience, entitles him to the expectation that he will probably reach the mean period of life which forms the basis of the calculations of the Office. By this, and by an accurate graduation of the premiums according to the ages of the assured, the greatest possible equalization of risk amongst the members of the Association which the principle of mutuality requires is attained. When reasonable grounds for believing in such a degree of health are afforded by the certificates and the examination, the assurance is accepted: in all other cases, the proposal is refused; nor is it accepted at a higher premium than the normal one, because a sufficiently sure basis for computing the proportionate increase of the premium is wanting. The expectation of life, on which the admission of new members depends, is regulated by the table of mortality on which the premiums are founded. For this purpose, the well known table computed by Mr. Babbage according to the experience of the Equitable Society has been adopted by the Gotha Life Office—with the modification, however, that the mortality of the higher ages, which that table seemed to represent as too small, and which in general appeared to be greater on the Continent than in England, was augmented. It will be seen hereafter how useful and necessary such a change was. The mean age at death, according to the table thus modified, is

Age.	Age.	Age.	Ag
60 when admitted at 15 to 17		69 when admitted at 45 to 47	
61 "	18 21	70 "	48 50
62 "	22 25	71 "	51 53
63 "	26 29	72 "	54 56
64 "	30 32	73 "	57 59
65 "	33 35	74 "	60 61
66 "	36 38	75 "	62 63
67 "	39 41	76 "	64 65
68 "	42 44	77 "	66 67

It results from Table I. (p. 327), that, of the 27,210 members who were assured, 4,264 went off in lifetime, and 4,519 have died: the number of those who died was therefore greater than that of those who went off in lifetime—which is remarkable, considering the short existence of the Gotha Company, and differs essentially from the experience of the English Life Assurance Offices. With these the case is entirely the reverse. For example: in the Equitable Society, at the end of 1829, after the Society had existed 67 years, the number of those who had died was 5,144, and of those who had left 9,324, the latter being therefore almost the double of the former. In 15 other Life Assurance Companies, on the experience of which a well known table of mortality is founded, and of which the oldest had existed not more than 29 years, the number of deaths was 3,928, and the number of discontinued policies 11,226. The German heads of families seem therefore to execute with greater perseverance the resolution they have once taken of being assured. The cause of it may partly be, that the revenue of that part of the public which takes a particular interest in Life Assurance Companies, in Germany, and to which more especially persons engaged in civil employments belong, seems to be exposed to fewer changes as to income, and that the assured are therefore seldom obliged to drop their policies on account of an insufficiency of the means of payment. The 4,519 deaths among the assured were not all paid in accordance with the conditions of assurance; there were among them not less than 100 cases of suicide; in addition to which, the payment of the assured sum for 31 deaths was refused on account of intemperance on the part of the assured, of fraudulent declaration and statements; 30 doubtful cases of them, on which lawsuits were instituted or intended, were adjusted by agreement and by partial payments of the assured sum: so that, upon the whole, independent of the full value or market value of the policies paid according to the statutes in cases of suicide and drunkenness, only 101 cases are deducted as not payable at all.

TABLE I.—Assurances in the Gotha Life Assurance Bank during the Years 1829–1853.

Year.	Assurances proposed.	Assured in the course of the Year.		Decreased.			Existing at the end of the Year.												
		New Assurances effected.		By discontinued, expired, and lapsed Policies.		By Death.	Total Decrease.	Net Increase.											
		Persons.	£.	Persons.	£.	Persons.	£.	Persons.	£.										
1829	1,581	392,371	1,285	339,886	1,285	Persons.	£.	Persons.	£.										
1830	607	160,243	504	149,243	1,777	486,971	14	3,743	12	2,157	12	2,157	12	1,273	337,729	Years, Months.	7		
1831	1,491	357,343	1,244	325,486	2,991	813,814	46	18,000	27	7,329	73	8,643	474	140,600	1,747	42	9		
1832	1,574	359,071	1,165	309,729	4,083	1,098,214	212	70,014	55	14,671	267	84,886	1,171	310,157	2,918	41	10		
1833	1,351	282,186	1,041	248,300	4,857	1,261,829	120	51,243	46	10,414	166	61,657	875	186,643	4,691	225,043	3,816	42	4½
1834	1,218	249,971	902	203,500	5,593	1,403,671	154	47,929	67	15,686	221	63,614	681	139,886	4,691	1,200,171	256	42	9
1835	1,318	268,271	989	225,371	6,361	1,565,429	155	42,614	86	24,200	241	66,814	748	158,557	6,120	1,340,057	572	43	1
1836	1,635	341,486	1,213	276,071	7,333	1,74,686	170	54,829	110	25,986	280	80,814	933	195,257	7,053	1,638,871	240	43	3½
1837	1,581	347,943	1,151	269,457	8,204	1,968,329	170	41,487	127	32,400	297	73,557	854	195,600	7,907	1,889,471	239	43	8
1838	1,555	317,843	1,154	269,700	9,061	2,159,71	156	48,314	126	30,643	282	78,357	872	190,743	8,779	2,080,214	237	44	4½
1839	1,419	306,148	1,024	249,029	9,803	2,329,243	195	54,129	127	30,100	322	84,229	702	164,800	9,481	2,245,014	237	44	4½
1840	1,485	277,543	1,089	224,057	10,570	2,468,071	193	50,657	143	39,714	336	90,371	753	133,636	10,234	2,378,700	232	44	3½
1841	1,414	286,014	983	229,257	11,217	2,607,957	178	41,771	164	41,986	342	83,575	641	145,500	10,975	2,524,700	232	45	1
1842	1,352	277,114	1,013	227,814	11,988	2,752,014	167	49,800	198	44,957	365	94,557	648	133,057	11,523	2,657,257	231	45	5
1843	1,503	297,514	1,049	236,914	12,572	2,857,171	193	56,943	203	46,614	466	103,557	653	133,357	12,176	2,790,614	229	45	10
1844	1,493	300,243	1,073	249,643	13,249	3,040,257	183	41,686	200	50,829	383	92,514	690	157,129	12,866	2,947,743	229	46	4
1845	1,412	292,296	1,018	225,257	13,884	3,138,000	178	46,729	238	54,814	416	101,543	692	133,714	12,468	3,081,457	229	46	4
1846	1,484	280,186	1,096	235,500	14,564	3,16,957	208	55,543	230	52,243	438	107,786	658	127,714	14,126	3,209,171	227	46	7
1847	1,706	346,457	1,235	278,314	3,487,486	240	56,643	203	68,100	533	124,748	702	153,571	14,828	3,352,743	227	46	10	
1848	1,151	255,743	824	218,786	15,652	3,531,529	277	77,600	339	73,757	616	151,357	208	67,429	15,036	3,430,171	228	47	4
1849	1,377	232,011	1,011	232,829	16,047	3,663,000	239	64,214	337	81,771	576	145,986	435	86,843	15,471	3,517,014	227	47	7
1850	1,537	305,428	1,138	265,786	16,609	3,732,800	196	57,471	331	81,871	529	138,486	609	126,300	16,080	3,643,314	226	47	10
1851	1,687	338,487	1,262	288,400	17,344	3,931,857	190	51,286	209	65,957	487	117,100	775	171,300	16,855	3,814,614	226	48	2
1852	1,886	381,657	1,423	332,371	18,278	4,146,986	217	60,171	346	82,757	563	142,929	800	189,443	17,715	4,004,057	226	48	2
1853	1,804	368,128	1,324	307,700	19,039	4,311,757	213	59,829	339	92,614	612	152,443	712	155,257	18,427	4,159,314	226	48	3
Total..	36,533	7,667,712	27,210	6,438,400	267,622	62,365,085	4,264	1,202,615	4,519	1,076,470	8,783	2,275,086	18,427	4,159,315	..	..	..	..	..
Average for one year..	1,463	306,708	1,088	257,536	..	..	..	171	48,105	180	43,059	351	91,163	737	166,373	..	..	..	..

In reducing the money values, £1 is taken = 7 thalers.

The following table shows the proportion of cash payments consequently made to that which was to be expected from the adopted table of mortality :—

TABLE II.—*Claims payable during 1829–1853.*

Year.	Amount.					Expected according to the Table in use.			Difference.				
		Persons.	£.	Average for one Life.	Per cent. of the Assurances.	Persons.	£.	Average for one Life.	Persons.	£.	Average for one Life.	There died	
												Plus.	Minus.
1829	12	2,157	180	0·93	0·63	15·19	3,997	263	..	..	..	3·19	1,840
1830	16	4,900	306	0·90	1·01	22·84	6,241	273	..	..	..	6·84	1,341
1831	27	7,186	266	0·90	0·88	32·38	9,036	279	..	..	..	5·38	1,850
1832	53	14,614	276	1·30	1·33	50·25	13,526	269	2·75	1,088	..	..	..
1833	46	10,147	221	0·95	0·80	64·81	16,814	259	..	..	..	18·81	6,667
1834	65	15,471	238	1·16	1·10	77·19	19,415	251	..	..	..	12·19	3,944
1835	85	23,628	278	1·34	1·51	89·34	22,299	249	..	1,329	..	4·34	..
1836	108	25,600	237	1·47	1·44	103·42	25,462	246	4·58	138	..	..	..
1837	123	31,059	252	1·50	1·58	117·99	28,880	245	5·01	2,179	..	..	..
1838	124	30,271	244	1·37	1·40	133·88	32,579	243	..	..	..	9·88	2,308
1839	123	29,486	239	1·25	1·26	149·74	36,318	243	..	..	..	26·74	6,832
1840	136	36,600	269	1·29	1·48	164·25	39,562	241	..	..	..	28·25	2,962
1841	158	39,789	252	1·41	1·53	179·02	42,772	239	..	..	..	21·02	2,940
1842	191	42,971	225	1·61	1·56	193·93	46,107	238	..	..	..	2·93	3,136
1843	201	46,257	230	1·60	1·60	208·55	49,317	236	..	..	..	7·55	3,060
1844	197	48,629	247	1·49	1·60	224·81	52,964	235	..	..	..	27·81	4,335
1845	235	54,457	232	1·69	1·71	241·13	56,754	235	..	..	..	6·13	2,297
1846	224	50,543	226	1·54	1·52	257·03	60,284	235	..	..	..	33·03	9,741
1847	289	67,143	233	1·88	1·93	275·53	64,311	233	13·47	2,832	..	..	..
1848	326	70,929	218	2·08	1·98	290·27	67,786	234	35·73	3,143	..	..	..
1849	335	80,929	242	2·09	2·21	302·28	70,685	234	32·72	10,244	..	..	..
1850	326	79,514	244	1·96	2·10	318·57	74,856	233	7·43	5,158	..	..	..
1851	293	65,571	224	1·69	1·67	337·52	78,595	233	..	..	..	44·52	13,024
1852	335	79,271	236	1·83	1·91	359·54	83,493	232	..	..	..	24·54	4,222
1853	390	90,514	232	2·05	2·10	382·07	88,407	231	7·93	2,107	..	..	..
Total..	4,418	1,047,636	6,047	37·28	37·84	4591·53	1,089,960	6,110	109·62	28,218	283·15	70,499	..
Average for one year ...	177	41,905	241	1·49	1·51	183·66	43,598	244	..	..	..	..	..

In reducing the money values, £1 is taken = 7 thalers.

If from the number of deaths which was to be expected according to the table in use, 4591·53, the real deaths 4519 are deducted, there results a minus of 72·53 deaths, or 1½ per cent. of the number expected ; and if those 101 cases which have not been paid are added thereto, the difference is 173·53, or about 3½ per cent. of the claims expected. This difference, which is on the favourable side, appears very trifling, and the table of mortality on which the calculations of the Gotha Life Office are founded has therefore proved upon the whole perfectly convenient and safe. Much greater differences exist between other tables, constructed with the greatest care and founded upon an apparently perfectly safe basis, as will be seen hereafter.

It will not be uninteresting to examine what the mortality has been, according to the different ages of the assured. This may be seen in the comparisons which the Gotha Life Office publishes every year, in its reports, of the real number of deaths with the

number expected,* by uniting the comparisons of each year into one, and taking into consideration how many persons have entered the Company and how many have withdrawn at the different ages. Table III., following, shows this combination, together with the consequences resulting from it. This table contains two deaths more than Tables I. and II., which happened before the end of 1853, but were not announced to the Office until after the publication of the report for this year.

Table I. shows that the total number of persons assured in each of the last 25 years was 267,622. The majority of these persons was indeed assured, or exposed to the risk, during the whole course of the corresponding year; but those who entered and withdrew in any year were not in this case. Persons enter and withdraw during all periods of the year in about the same proportion; consequently it may be assumed, for the computation of the rate of mortality, that the accession to the Company and leaving the same take place in the middle of the year, and each of the members who acceded and retired has been assured only six months in the first and last year. The above accession of 27,210 persons, and the withdrawal of 4,264 persons, have taken place in the different groups of age, in the manner shown in Cols. 3 and 4. If we deduct half of this total number (Col. 6) from the persons who were assured (Col. 2), we exhibit (Col. 7) the number of those persons who, upon an average, were assured, or exposed to the risk, for the term of a whole year. Comparing with this number the number of deaths specified in Col. 8, we find the rate of mortality given in Col. 9.

TABLE III.—*Persons assured and Deaths during 1829–1853.*

AGES. 1.	Number of Persons assured. 2.	Number of Persons entered. 3.	Number of Persons gone in lifetime. 4.	Total of 3 and 4. 5.	Half of the numbers in Col. 5. 6.	Number exposed to the risk of Mortality for a whole Year. 7.	Deaths. 8.	Rate of Mortality per cent. 9.
15—25	2,312	998	137	1,135	567	1,745	8	0·46
26—30	11,547	3,731	468	4,199	2,099	9,448	82	0·87
31—35	28,842	5,832	716	6,548	3,274	25,568	234	0·92
36—40	43,075	5,795	736	6,531	3,265	39,810	398	1·00
41—45	48,971	4,296	705	5,001	2,500	46,471	483	1·04
46—50	45,092	3,050	667	3,717	1,858	43,234	627	1·45
51—55	35,987	2,056	432	2,488	1,244	34,743	631	1·82
56—60	25,594	1,237	254	1,491	745	24,849	689	2·77
61—65	15,412	205	105	310	155	15,257	585	3·83
66—70	7,327	10	35	45	22	7,305	444	6·08
71—75	2,692	..	6	6	3	2,689	243	9·04
76—80	697	..	3	3	1	696	79	11·35
81—85	71	..	..	..	..	71	17	23·94
86—90	3	..	..	..	..	3	1	33·33
Total...	267,622	27,210	4,264	31,474	15,733	251,889	4,521	

* Page 60.

If we cast a glance on the last column of this table, we are immediately struck by the insignificant mortality in the ages under 55 years, and the rapid increase of the same beyond that age. Although it is established by the usual laws of the duration of human life that, after passing the first years of life, mortality increases from one stage of life to another, and that especially the 55th year forms an epoch from which this increase takes place in much greater progression than before, yet other tables of mortality do not show in this respect so considerable a contrast as the above table. This contrast becomes still more evident if the common average of mortality under 55 years and that above 55 years be compared in different tables, and if it be computed for every one of them how much per cent. the average above 55 years exceeds that under 55 years.

TABLE IV.—*Rate of Mortality under 55 years and above 55 years.*

AGES.	Gotha Life Office, 1829-1853.	Equitable Expe- rience, 1762-1829. (Morgan) ¹	Seventeen English Life As- surance Offices, ² 1762-1840.	Prussian Widows' Fund, 1776-1845. Males (Brune.) ³	England. Males. (Farr, 1841.) ⁴	France. Males. 1817-1831. ⁵ (Demont- ferrand.)	Belgium. Males. 1844-1845. ⁶ (Quetelet)	Hanover, 1825-1843. (Tell- kampf.) ⁷	Saxony. Males. 1834-1850. (Leon- hardi.) ⁸
26—55	1·18	1·18	1·19	1·32	1·37	1·22	1·98	1·58	1·59
56—85	9·50	8·15	8·20	9·47	8·26	8·81	8·79	9·63	10·69
Increase } per cent.]	703	590	587	613	502	622	344	509	572

¹ Tables showing the total number of Persons assured in the Equitable Society from its commencement in September, 1762, to January 1, 1829. By Ar. Morgan. London, 1834, page 28, Table C.

² Series of Tables calculated from a New Rate of Mortality amongst Assured Lives. By Jenkins Jones. London, 1843, Table X.

³ Masius Versicherungszeitung für 1847, pp. 187, 196. Assurance Magazine, Vol. III., page 29.

⁴ Sixth Annual Report of the Registrar-General. London, 1845, pp. 597, 598.

⁵ Journal de l'Ecole Royale Polytechnique. Tome XVI. Paris, 1838, page 306.

⁶ Annuaire de l'Observatoire Royal pour 1850, par Quetelet. Brussels, 1849.

⁷ Die Verhältnisse der Bevölkerung und der Lebensdauer im Königreich Hannover, von Dr. A. Tellkampf. Hanover, 1846, pp. 120, 121.

⁸ Statistische Mittheilungen aus dem Königreich Sachsen, herausgegeben vom Statistischen Bureau des Ministeriums des Innern. II. Abtheilung, II. Lieferung. Dresden, 1852. (A most excellent work).

The Gotha Life Office accordingly shows the highest measure of the gradation of mortality from one period of life to the other. Whilst the mortality amongst the assured members is uncommonly low in the former, it is uncommonly high in the latter.

It will not be uninteresting to examine the proportion which

exists between the mortality of the persons assured by the Gotha Life Office and that of the assured by other similar Companies. Those Offices which assure only healthy persons, demanding at least a medical certificate of health of everyone who desires to become a member, must experience a much less mortality amongst the assured than we find in a mixed population, provided the necessary care be taken and proper precautions used. It is not to be denied that life assurance offers peculiar attractions to weak and sickly persons affected with hidden complaints, whom the fear of an untimely death oppresses, more than to healthy vigorous men, and that it impels them much more to seek admission into such a Society. There exists a striking difference between the Offices assuring sums payable at death and those assuring annuities. Whilst it is chiefly healthy and vigorous individuals, who have the prospect of a long enjoyment of the annuities they are about to purchase, who throng to the latter Companies, and such Societies naturally consist of persons in the most perfect state of health, Life Assurance Offices have always to struggle with the opposite elements. In this struggle they are not always successful; notwithstanding all care and precaution, they are sometimes deceived. At all events, the majority of the persons assured by them possess only a moderate measure of health at the time of their acceptance; they are, indeed, free from such diseases and complaints as are attended with a speedy death, but not from slighter affections, which, though not presenting instant danger, may yet lay the germ of death by and by. While perceptibly bad health is excluded, because it would cause an evident loss, persons who form select specimens of health, confiding in a duration of life which they think not likely to be shortened, are but little attracted. Persons enjoying a moderate measure of health, being sometimes reminded of dangerous diseases by little indispositions, are however warned to attend to their health, live in general carefully and regularly, and frequently reach therefore an advanced age. In them the proverb is verified, that creaking waggons often last longest.

The influence which the medical examination has on the diminution of mortality amongst the assured evidently appears greatest at the time of admission, and in the years immediately following it. The admission to the Office being by preference at the younger ages, and particularly in the ages of 30-45 years, mortality must also be but trifling in these and the next classes of age. Afterwards, the state of the health of the assured members becomes by degrees of a more mixed character, and therefore the mortality

increases. A principal reason of this increase is, that a great number of assured persons withdraw during life. The majority of the individuals who drop their assurances during life and suffer the loss connected therewith being quite healthy, but the members who become sickly regularly continuing their assurances, the average state of health of the Society must be deteriorated in the higher ages, and mortality of course increased, in these classes.

The increase of strictness and precaution at the acceptance of new members will therefore principally produce effect on the mortality at those classes of age at which admission principally takes place, and in those which immediately follow, but have less influence on the classes of later ages, in consequence of the above-named circumstance.

Table V., following, shows the rate of mortality among the members assured by the Gotha Life Office and of those in the English Offices. We perceive that the mortality under the age of 55 years is nearly equal in both cases. Beyond this age, on the contrary, the mortality is not so great amongst the members of English Companies as of the Gotha Office. The reason of this difference is, in our opinion, not to be sought in the circumstance that the English Companies are more circumspect in the reception of new members, and that the physicians there, in consequence of their more extensive experience in this field, understand better than the German ones how to estimate the duration of human life by the different condition of their state of health. If this were the case, the effects would be seen more in the ages below 55 years. That this difference does not present itself till the higher ages, is a proof that there must be some other reason. We can only come to the conclusion that, in general, mortality is less at the higher ages in England than in Germany.

In examining the above table, every reader will be struck by the very trifling mortality amongst the members of the Friendly Societies in England. Though these Societies in a great measure comprise only tradesmen, workmen in manufactories, and labouring men, and though we are accustomed to think the mortality in the lower classes of the people greater than in the middle and higher ranks, by whom life assurance is generally resorted to, yet it is just the reverse in England. We cannot doubt the correctness of this observation, on account of the high respectability of the two authorities, Neison and Finlaison, the latter of whom entered on the inquiry of the returns made by order of Parliament. We will, however, limit this observation only to England, and not extend it

TABLE V.—Mortality of the Assured Persons in the Gotha Life Assurance Company, compared with the Mortality of the Assured Persons in other Companies.

Ages.	EQUITABLE SOCIETY.				17 ENGLISH LIFE ASSURANCE OFFICES.				FRIENDLY SOCIETIES (FINLASSON). ¹				PRUSSIAN WIDOWS FUND. Males (BRUNN). ²				
	Gotha Life Office.		Difference.		Life Assurance Offices.		Difference.		FRIENDLY SOCIETIES (NEISON). ¹		Difference.		Prussian Widows Fund.		Difference.		
	Mortality per cent.	Absolute.	Plus.	Minus.	Mortality per cent.	Absolute.	Plus.	Minus.	Mortality per cent.	Absolute.	Plus.	Minus.	Mortality per cent.	Absolute.	Plus.	Minus.	
26-30	0.87	0.78	..	..	0.09	10.3	0.81	..	0.06	6.9	0.73	..	0.14	16.1	0.75	..
31-35	0.92	1.00	1.03	0.03	0.04	4.4	0.89	..	0.03	3.3	0.80	..	0.12	13.0	0.85	0.17	
36-40	1.00	1.04	1.18	0.14	1.35	0.07	1.43	0.09	0.01	1.0	0.89	..	0.11	11.0	0.95	0.07	
41-45	1.04	1.18	1.18	0.14	1.13	0.09	1.13	0.07	0.02	1.4	1.04	..	1.13	0.99	0.10	19.54	
46-50	1.45	1.38	1.85	0.03	1.6	0.07	4.8	1.43	0.02	1.4	1.29	..	0.16	11.0	1.37	..	
51-55	1.82	1.85	1.85	0.03	1.6	0.09	1.91	0.09	4.9	1.12	1.70	..	0.12	6.6	1.77	..	
56-60	2.77	2.68	..	..	0.09	3.2	2.65	..	0.12	4.3	2.24	..	0.53	19.1	2.45	..
61-65	3.83	3.72	..	..	0.11	2.9	3.79	..	0.04	1.0	3.05	..	0.78	20.4	3.12	..
66-70	6.08	5.48	..	..	0.60	9.9	5.55	..	0.53	8.7	4.62	..	1.46	24.0	4.75	..
71-75	9.04	7.89	..	..	1.15	12.7	8.13	..	0.91	10.1	6.85	..	2.19	24.2	6.70	..
76-80	11.35	11.18	0.17	1.5	11.88	0.53	4.7	6.72	28.1	11.97	..	2.51	22.1	10.32	..
81-85	23.94	17.97	..	..	5.97	24.9	17.22	..	..	..	..	..	11.97	50.0	15.31	..

¹ Contributions to Vital Statistics, by Neison, London, 1846. Table F, page 28.

² Friendly Societies' Return to an Order of the House of Commons. Finlaison, 1853.

to the Continent, especially not to Germany. Respecting the latter country there are still wanting sufficiently sound and extensive observations to answer this question with precision ; what, however, the author has observed in smaller circles does not admit the application to Germany of the observations which have been made in England. On the contrary, with us, mortality among the members of Funeral Funds and Funds for Sick Allowances to persons of the less wealthy population, a great number of which exist in Germany, is much greater than in the middle and higher classes ; and, in order to enable these Associations to continue in existence, the contributions of the members must be fixed higher for Funeral Funds here than for Life Assurance Companies.

One important circumstance must, however, not be left quite out of consideration. The experience on which the tables of mortality of the Equitable Society and of the seventeen English Life Assurance Companies are founded goes back to the last century, and, as regards the Equitable, as far back as 1762. The experience of the Friendly Societies commences only from a recent period. It is known that mortality has decreased since the restoration of the universal peace in Europe, and the difference would perhaps not be so great as the above table indicates, if we could compare only the more recent experience of the English Life Assurance Companies with that of the Friendly Societies. The experience of the Gotha Office is likewise of the later period—it agrees with that of the Friendly Societies in the class of 41–45 years, but shows a higher mortality for all other classes of age, and this difference is greater for the higher than the lower ages ; which perfectly agrees with and confirms the observation before made, that a less mortality is experienced at the higher ages in England than in Germany.

The last of the above columns shows the proportion of the mortality of the Gotha Office to that of the Prussian Widows' Fund at Berlin. This institution, which has been in existence since 1776, was formerly open to everyone in all Germany, but has been limited since 1830 to individuals in civil offices in the kingdom of Prussia, the contributions of the members being too low and great losses having resulted, which the Prussian government must cover. Up to the year 1845 more than 40,000 married couples had been admitted ; amongst whom, up to that period, 11,501 deaths of husbands and 12,788 deaths of wives and widows had happened. Relying upon these data, Brune has computed the two celebrated tables of mortality, which deserve great confidence,

as well on account of the accuracy as of the extent of the observations. Though both Companies (Gotha and Berlin) obtain their members from nearly the same classes of population—that is to say, from the middle and higher classes, especially of men in office—yet the mortality is considerably higher in the Prussian Company than in the Gotha Office. The cause of this difference is partly to be found in the circumstance that the Widows' Fund does not proceed with the same strictness as the Gotha Office in the admission of its members, but demands only the production of a general and short testimony from the physician of the party desirous of admission, without entering into a closer and more accurate examination of his health; partly in the circumstance that the experience of the Prussian Widows' Fund extends principally over the end of the last and the beginning of the present century, when the rate of mortality was greater than during the last 40 years. The considerable difference in the ages of 41–55 years, at which the mortality in the Gotha Company is much diminished, in consequence of a greater strictness on admission, shows that the former of those reasons had a great influence and effect.

In order to show more clearly the difference which is produced in mortality by the medical examination of the persons who desire to be assured, we exhibit in Table VI. (*see p. 336*) a comparison of the mortality at the Gotha Office with that in several mixed populations.

We still want in Germany a general table of mortality of some authority. In most of the German States, sufficient attention is not paid to the statistical facts requisite for the computation of such a table, which can only be obtained by accurate enumerations of the people, often repeated, subdivided according to the classes of age, and by keeping accurate registers of deaths. The greatest confidence may be reposed in the tables of mortality computed by Tellkampf for the kingdom of Hanover, and by Leonhardi for the kingdom of Saxony; we have therefore made use of them for comparison. Though all the observations forming the basis of these tables have originated in recent times, yet both tables indicate for all ages an essentially higher mortality than that which rules amongst the members of the Gotha Company; the examination of health to which these members were obliged to submit at their admission has therefore contributed in no slight degree to the diminution of mortality.

The same fact results from a comparison with the mortality in

TABLE VI.—*Mortality of the Assured Persons in the Gotha Life Assurance Company, compared with the Mortality of some mixed Populations.*

Ages.	Gotha Life Office.	England Males—Farr.				France— Males—Denonvillard.				Belgium— Males—Quetelet.				Hanover, Teilhampfer.				Saxony, Males—Leonhardi.				
		Difference.				Difference.				Difference.				Difference.				Difference.				
		Mor- tality per cent.	Plus.	Minus.	Abs- olute.																	
26—30	0·87	0·97	0·10	11·49	..	0·88	0·01	1·15	..	1·50	0·63	7·230	..	1·11	0·24	27·59	..	1·07	0·20	22·99	..	
31—35	0·92	1·10	0·18	19·57	..	0·95	0·03	3·26	..	1·58	0·66	71·74	..	1·25	0·33	35·87	..	0·99	0·07	7·61	..	
36—40	1·00	1·25	0·25	25·00	..	0·94	..	0·94	..	6·00	1·72	72·00	..	1·35	0·35	35·00	..	1·15	0·15	15·00	..	
41—45	1·04	1·42	0·38	36·54	..	1·17	0·13	12·50	..	2·16	1·12	107·69	..	1·48	0·44	42·31	..	1·57	0·53	50·96	..	
46—50	1·45	1·62	0·17	11·72	..	1·43	..	1·43	..	0·02	1·38	2·43	..	1·77	0·32	22·07	..	2·07	0·62	42·76	..	
51—55	1·82	1·87	0·05	27·5	..	1·93	0·11	6·04	..	2·47	0·65	35·71	..	2·50	0·68	37·36	..	2·71	0·89	48·90	..	
56—60	2·77	2·71	0·06	2·17	..	2·50	0·27	9·75	..	3·15	0·38	13·72	..	3·61	0·84	30·32	..	3·71	0·94	33·94	..	
61—65	3·83	3·83	0·12	3·13	..	3·13	0·12	5·43	..	4·24	0·41	10·70	..	5·70	1·87	48·83	..	5·48	1·60	41·78	..	
66—70	6·08	6·08	0·75	5·75	..	5·33	0·33	5·60	..	7·89	0·48	..	..	7·91	1·83	30·10	..	7·37	1·29	21·22	..
71—75	9·04	9·04	8·32	8·32	..	0·72	7·96	9·25	0·21	2·32	..	8·65	..	0·39	4·42	9·34	..	10·39	1·35	14·93	..	
76—80	11·35	11·94	0·59	5·20	..	12·79	1·44	12·69	..	12·86	1·51	13·30	..	12·74	1·39	12·25	..	15·48	4·13	36·39	..	
81—85	23·94	16·90	..	7·04	29·41	18·62	..	5·32	22·22	18·01	..	5·93	24·77	18·50	..	5·44	22·72	21·74	..	2·20	9·19	..

Belgium—a country the greater part of which belonged to Germany for a considerable time, which is inhabited by a German race, and where German manners and institutions are still to be found. Mortality is much greater here, especially at the younger ages, and somewhat lower at the higher ages, than amongst the persons assured in the Gotha Office. The latter difference would very likely not be observed, or perhaps fall even on the opposite side, if precisely the same ages could be compared with each other; Quetelet, however, has given the mortality in leaps from 5 to 5 years, and for the ages of 25–29, 30–34, 35–39, &c., in the most recent table, which I have made use of, and which seems to deserve the greatest confidence. All these classes of age are therefore a year lower than in the other tables given for comparison, which makes an essential difference for higher ages, and naturally gives the average of mortality too low in comparison with the other tables.

(*To be continued.*)

Memoir of the late Griffith Davies, Esq., F.R.S.; abridged from a more extended one, by his Nephew, THOMAS BARLOW, Esq., of the Metropolitan Life Assurance Society.

MR. GRIFFITH DAVIES was born on the 28th of December, 1788, at the foot of Cilgwyn Mountain, in the parish of Llandwrog, Carnarvon. His father, Owen Davies (or, in Welsh, Owen Dafydd), who was a most industrious and worthy man, held a small tenement, and devoted his spare time to work in the neighbouring slate quarries. His family consisted of four sons and three daughters. A short time previous to the birth of his second child, Griffith, a brother of his died whose name was Gryffyth Dafydd, and out of respect for his memory Mr. Davies was called after him; otherwise he would have been named "Gryffydd Owen," in accordance with the custom of the country, which gives for a surname to the son the Christian name of the father. Mr. Davies, when a child, was exceedingly delicate, so much so that his parents entertained great fears as to whether they would be able to rear him; but his health somewhat improved as he grew to manhood.

The spot on which he was ushered into life was at that time completely isolated. There were no schools of any kind whatever either in the parish of Llandwrog or in any of the parishes adjoin-